REMARKS

In the Office Action dated 10/3/03, claims 27-45 were rejected under 35 U.S.C. § 102(e) as being anticipated by USP No. 6,442,743 issued to Majid Sarrafzadeh et al (hereinafter referred to as "Sarrafzadeh"). In this Amendment, Applicants have amended claim 37 to correct a typographical error. New Claims 46 and 47 have been added. Accordingly, claims 27-47 will be pending after entry of this Amendment.

I.   Amendment to Claim 37

Claim 37 included a typographical error. The word "routes" in the "storing" step should have been singular rather than plural. Applicants have remedied this error by substituting the word "route" for the word "routes".

II.   Rejection of the Claims Under 35 U.S.C. § 102(e)

In the Office Action, the Examiner rejected claims 27-45 under 35 U.S.C. § 102(e). The Examiner stated that the claimed invention was anticipated by Sarrafzadeh. Applicants respectfully submit that Sarrafzadeh does not anticipate any of claims 27-45 for at least the following reasons.

In order for a reference to anticipate a claim, "every element of the claimed invention must be identically shown in a single reference." In re Bond, 910 F. 2d 831, 832, 15 USPQ 2d 1566, 1567 (Fed Cir. 1990) (emphasis added).

A. Claims 27-36

Applicants respectfully submit that Sarrafzadeh does not identically describe every step of claim 27 because Sarrafzadeh does not describe either a step which entails "for a set of potential sub-regions, identifying a set of routes that traverse the potential set of sub-regions, wherein at least one of the routes has at least one diagonal edge" or a step which entails "storing the identified routes" as recited in claim 27.

Sarrafzadeh describes a method for designing an integrated circuit using topo-clustering. According to one embodiment described in Sarrafzadeh, the method first entails clustering gates and placing the clustered gates within bins. An iterative process is then applied to windows which encompass a number of bins. When a region bounded by a window meets a specified cost threshold in terms of specified cost function, that region stops participating in the iterative process. See Abstract and Claim 1.

On the other hand, the present invention describes a method for pre-computing routes for an integrated circuit. According to claim 27 of the present invention, one embodiment of this method entails (1) dividing a region into a plurality of sub-regions, (2) identifying a route that traverses the plurality of sub-regions where at least one of the routes has at least one diagonal edge, and (3) storing the identified routes. Nothing in Sarrafzadeh describes, teaches, or even suggests a step of identifying a route that traverses a plurality of sub-regions where at least one of the routes has at least one diagonal edge.

In the Office Action, the Examiner suggests that Figures 13-16 and 18 of Sarrafzadeh describe the routes recited in claim 27. Applicants respectfully disagree. The lines shown in Figures 13-15 of Sarrafzadeh do not represent routes. These lines are used to illustrate how gates from previously identified clusters are placed into bins and cells. Col. 6, lines 46-Col 7, line 14. Furthermore, as the Examiner suggests, nothing in Sarrafzadeh describes those lines has being diagonal as recited in claim 27. Since Sarrafzadeh does not describe identifying routes as recited in claim 27, Sarrafzadeh also does not describe storing those identified routes as recited in claim 27.

Because Sarrafzadeh fails to describe both the "identifying" and the "storing" steps of claim 27, Sarrafzadeh does not identically describe each step of claim 27. Accordingly, Applicants respectfully submit that Sarrafzadeh does not anticipate the subject matter of

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claim 27. Applicants therefore respectfully request withdrawal of the rejection of claim 27 under 35 U.S.C. § 102(e) as anticipated by Sarrafzadeh.

Each of claims 28-36 are dependent, either directly or indirectly, upon independent claim 27. Therefore, claims 28-36 are patentable over Sarrafzadeh for the same reasons that

5   independent claim 27 is patentable over Sarrafzadeh.

B. Claims 37-41

Applicants respectfully submit that Sarrafzadeh does not identically describe every step of claim 37 because Sarrafzadeh does not describe either a step of "identifying the routing paths used by each identified route, wherein some of the identified routing paths are diagonal" or a step

10   of "storing the identified routing paths for each identified route in a storage structure" as recited in claim 37. As mentioned above, Sarrafzadeh describes a method for designing an integrated circuit using topo-clustering. In the Office Action, the Examiner again asserts that Figures 13-16 and 18 of Sarrafzadeh describe the diagonal routing recited in claim 37. As mentioned above with respect to claim 27, the lines in Figures 13-16 do not illustrate routes; and nothing in

15   Sarrafzadeh describes those routes as being diagonal. Since Sarrafzadeh fails to describe a step which entails identifying routing paths as recited in claim 37, Serrafzadeh also fails to describe a step which entails storing those identified routing paths.

Because Sarrafzadeh fails to describe both the "identifying" and "storing" steps as recited in claim 37, Sarrafzadeh does not identically describe each step of claim 37. Accordingly,

20   Applicants respectfully submit that Sarrafzadeh does not anticipate the subject matter of claim 37. Applicants therefore respectfully request withdrawal of the rejection of claim 37 under 35 U.S.C. § 102(e) as anticipated by Sarrafzadeh.

Each of claims 38-41 are dependent, either directly or indirectly, upon independent claim 37. Therefore, claims 38-41 are patentable over Sarrafzadeh for the same reasons that independent claim 37 is patentable over Sarrafzadeh.

C. Claims 42-45

5   Applicants respectfully submit that Sarrafzadeh does not identically describe every step of claim 42 because Sarrafzadeh does not describe either a step of "identifying the edges intersected by each routing graph identified for the particular combination of said slots, wherein some of the identified edges are diagonal" or a step of "storing the identified edges for each routing graph identified for the particular combination of said slots in a storage structure" as recited in claim 10   42. As mentioned above, Sarrafzadeh describes a method for designing an integrated circuit using topo-clustering. Also as mentioned above, nothing in Sarrafzadeh describes <u>diagonal</u> edges. Also as mentioned above, because Sarrafzadeh fails to describe a step of identifying edges as recited in claim 42, Sarrafzadeh fails to describe a step of "storing" those identified edges.

Both because Sarrafzadeh fails to describe a step of identifying edges where some of the 15   identified edges are diagonal and because Sarrafzadeh fails to describe a step of "storing the identified edges . . . ", Sarrafzadeh does not identically describe each step of claim 42. Accordingly, Applicants respectfully submit that Sarrafzadeh does not anticipate the subject matter of claim 42. Applicants therefore respectfully request withdrawal of the rejection of claim 42 under 35 U.S.C. § 102(e) as anticipated by Sarrafzadeh.

20   Each of claims 43-45 are dependent, either directly or indirectly, upon independent claim 42. Therefore, claims 43-45 are patentable over Sarrafzadeh for the same reasons that independent claim 42 is patentable over Sarrafzadeh.

III. New Claims 46 and 47

In this Amendment, Applicants have added new Claims 46 and 47. Applicants respectfully submit that these new claims are patentable over Sarrafzadeh as Sarrafzadeh fails to disclose, teach, or even suggest the limitations in these claims. For instance, Sarrafzadeh fails to

5 disclose, teach, or even suggest the method of claim 46, which:

- defines a set of partitioning lines for partitioning the region into a plurality of sub-regions during a routing operation, wherein a plurality of ±45° diagonal paths and a plurality of Manhattan paths exist between the sub-regions;

- for a set of potential sub-regions, identifies a set of routes that traverse the

10 potential set of sub-regions, wherein at least one of the routes utilizes at least one diagonal path and one Manhattan path; and

- stores the identified routes.

Sarrafzadeh fails to disclose, teach, or even suggest the method of claim 47, which:

- defines a set of partitioning lines for partitioning the region into a plurality of sub-

15 regions during a routing operation, wherein a plurality of ±45° diagonal paths and a plurality of Manhattan paths exist between the sub-regions;

- for a set of potential sub-regions, identifies a set of routes that traverse the potential set of sub-regions, wherein at least one of the routes utilizes at least one diagonal path and one Manhattan path; and

20 - stores the identified routes.

IV. Information Disclosure Statement

Accompanying this Amendment is a 1449 form of an Information Disclosure Statement that Applicants are submitting concurrently with but separately from this Amendment. This Information Disclosure Statement lists and provides copies of several additional references for the Examiner's consideration. The Examiner is requested to make these documents of record. Also attached is a second group of 1449 forms of Information Disclosure Statements that Applicants have submitted prior to submission of this Amendment but which Examiner has not yet made of record. The Examiner is requested to make these documents of record as well.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 27-47, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

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Respectfully submitted,

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Dated: 2-3-04

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Attny Docket:SPLX.P0044
PTO Serial Number:10/041,957